Valvular Heart Diseases

PP-395

Quantitatively Assessed Spontaneous Echo Contrast Density Predicts Left Atrial Thrombus Formation in Patients with Rheumatismal Mitral Stenosis: An Integrated Backscatter Analysis Study

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Objectıve: In patients with rheumatismal mitral stenosis (MS), visually assessed left atrial (LA) spontaneous echo contrast (SEC) density is an independent and important risk factor for development of LA thrombus. Integrated backscatter analysis (IBS) provides the quantitative analysis of LA SEC density and however, little is known about the relation between the quantitatively assessed LA SEC density and LA thrombus formation in patients with rheumatismal MS.
Materıal-Method: We performed transesophageal echocardiography with IBS analysis before planned mitral balloon valvuloplasty in consecutive 80 patients (mean age: 44.7±9.1 years; 84% female) with MS without significant valvular regurgitation. The quantitative SEC severity of the LA cavity was defined as the difference between LA and LV IBS intensities (corrected IBS=cIBS).
Results: LA thrombus was identified in 29% (n=23) of the study cases. In subjects with thrombus formation, cIBS of LA SEC was significantly increased compared to patients with no thrombus formation (7.5±2.5 dB vs 5.1±1.9 dB, p<0.001). Stepwise multivariate logistic regression analysis revealed that cIBS level of LA SEC was significantly associated with LA thrombus formation independent from other factors, including mean transvalvular mitral gradient, mitral valve area, atrial fibrillation and oral warfarin medication. In the receiver operating characteristics curve analysis, a cIBS >6.2 dB had 78% sensitivity and 76% specificity in predicting LA thrombus formation.
Conclusıon: By using IBS analysis method, quantitatively assessed high LA SEC density is an independent predictor of LA thrombus formation in patients with rheumatismal MS.

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Impact of Cardiac Rhythm on Mitral Valve Area and Gradient in Patients with Mitral Stenosis

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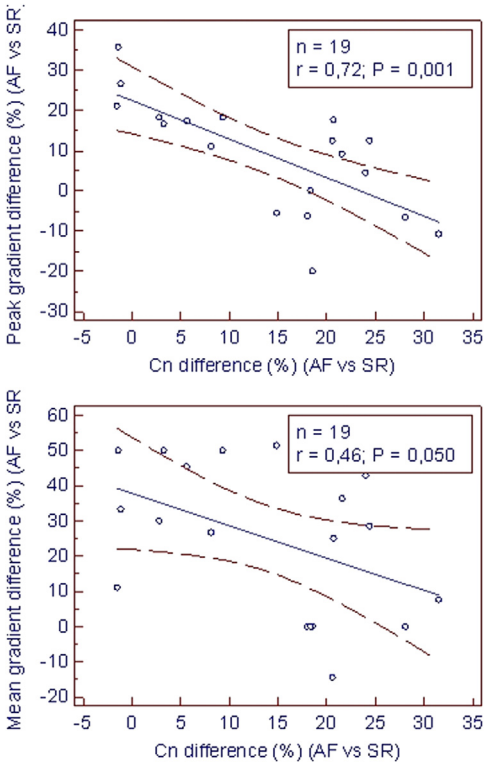
Background: Echocardiography is the standard tecnique for assessing the mitral valve area (MVA) in patients with mitral stenosis (MS). However the assessment could affected by some factors, atrial fibrillation (AF) is one of them. The aim of this study was to evaluate the effect of cardiac rhythm on echocardiographic MVA and transmitral gradient calculation in relation to net atrioventricular compliance (Cn).
Method: Patients (n=22) with rheumatic pure MS (MVA < 2cm2) and AF were evaluated. All patients underwent transthoracic electrical DC cardioversion under amiodarone treatment and 19 patients were successfully converted to sinus rhythm (SR) who were evaluated with transthoracic echocardiography (TTE) before and one day after DC cardioversion. MVA was obtained the pressure half-time (PHT) and planimetry method, mitral gradient (mean and peak) was obtained from Doppler diastolic mitral inflow velocites with TTE. Cn was calculated with a previously validated equation (Cn (ml/mmHg) = 1, 270 x (MVA / E-wave downslope). The percentage Cn differences between AF and SR were calculated as follows: [(AF Cn – SR Cn) / AF Cn]x100%. The percentage gradient (mean or peak) differences between AF and SR were calculated as follows: [(AF gradient (mean or peak) – SR gradient (mean or peak)) / AF gradient (mean or peak)]x100 %.
Results: The MVA was lower (MVA planimetric; 1,62±0,29 vs 1,54±0,27; p=0,003, MVA PHT; 1,66±0,30 vs 1,59±0,26; p=0,01) but transmitral gradient (mean gradient; 6,49±2,51 vs 8,89±3,52; p=0,001, peak gradient: 16,94±5,11 vs 18,57±4,54; p=0,01) and Cn (5,37±0,77 vs 6,26±0,64; p<0,001) were higher in the AF than SR. There were significant correlation coefficient between Cn difference and transmitral gradient difference (mean and peak) (Cn difference – mean gradient difference; r=0,46. p=0,05; Cn difference – peak gradient difference; r=0,72. p=0.001) (Figure 1).
Conclusıon: Cardiac rhythm has a significant influence on MVA, transmitral gradient and Cn in patients with MS.



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High Levels of High Sensitivity C-Reactive Protein and Uric Acid can Predict Disease Severity in Patients with Mitral Regurgitation

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Background: Both high sensitivity CRP (hs-CRP) and uric acid (UA) levels are known to be increased in heart failure patients and are associated with poorer functional capacity and adverse outcome. The role of these markers in patients with mitral regurgitation (MR) is less clear. The aim of this study was to evaluate the relationship between hs-CRP, UA and organic MR. We also evaluated whether hs-CRP, UA levels are interrelated with symptoms of MR, the severity of MR, LV remodeling and outcome at 12 month follow-up.
Methods: A total of 200 consecutive patients (87 men [43.5%]; mean age 61.6±12.5 years) with isolated and organic moderate or severe MR were included in the study. Patients were categorized according to the New York Heart Association (NYHA) functional class. We assessed and graded the severity of MR using a multiparametric approach.
Results: Baseline demographic, clinical characteristics and laboratory parameters of patients with MR are listed and compared between asymptomatic and symptomatic patients in Table 1. High-sensitivity CRP was significantly elevated among symptomatic MR patients when compared with asymptomatic patients (5.9±6.8 vs. 2.56±1.9 mg/l; p =0.004). Median hs-CRP levels were increased significantly with increase in NYHA class (NYHA class I=1.50 mg/l [0.90-3.50], NYHA class II=2.73 mg/l [2.59-6.57], NYHA class III=5.20 mg/l [3.30-9.30], NYHA class IV=4.07 mg/l [4.03-7.92], p<0.001; Figure 1). Similar correlation was also found with MR severity and median hs-CRP levels found to be increased significantly with higher degrees of MR (moderate=2.62 mg/l [1.70-2.95], moderate to severe=5.20 mg/l [3.30-5.6], severe=5.53 mg/l [4.50-9.30], p=0.002; Figure 2). Uric acid levels were significantly elevated among symptomatic MR patients than asymptomatic ones (6.5±2.4 vs. 4.5±1.6 mg/dl; p<0.001). Mean UA levels increased significantly with NYHA class: 4.46±1.58 mg/dl for NYHA I, 5.91±1.69 mg/dl for NYHA II, 6.31±2.16 mg/dl for NYHA III and 8.86±3.17 mg/dl for patients in NYHA IV (p<0.001; Figure 3). Mean UA levels were also increased significantly with increase in severity of MR (moderate=5.62±1.9 mg/dl, moderate to severe=5.56±1.2 mg/dl, severe=7.38±3.4 mg/dl, p<0.001; Figure 4). There was a significant correlation between UA level and LVEDD (r=0.40; p<0.001, Figure 5), LVESD (r=0.297; p=0.001) and LVEF (r=0.195, p=0.036), whereas hs-CRP was not correlated with those parameters. In multivariate Cox proportional

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